been manufactured and developed in this country by the Brush Electrical Engineering Company, of Loughborough, since 1913.

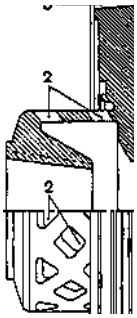

Fig. 38 shows a section of an individual blade ring. The blade strip is milled out of solid nickel steel bars, and the individual blades are cut to required length with a taper projection at either end. These projections fit into corresponding notches formed in two welding discs. Thin sheet-iron strips are temporarily inserted between individual blades to ensure correct spacing and angles, and the taper ends are then welded into the discs. The sheet-iron strips are then removed and the discs cut down to dovetailed profile rings (10). The strengthening rings have the initial shape shown in fig. 39 (12), and the rolling edges (6) are rolled on to the dovetail. The same method of rolling is adopted for holding the strengthening rings to the dumb-bell section expansion ring (13). This ring has two functions. Firstly it gives the necessary play to the blade ring to allow for temperature expansion, and the second purpose is served by the narrow section which reduces heat conduction from the blade rings to the disc. The expansion rings in turn are held in seating rings (2) which are caulked into knurled slots cut In the discs (i), (fig. 38).

Steam leakage between stages is reduced to a minimum

lked into the strengthening rings and which project within a few thousandths of an inch of the strengthening rings of the next blade ring.

Where the required blade area calls for blade lengths which are considered "excessive for assing blade

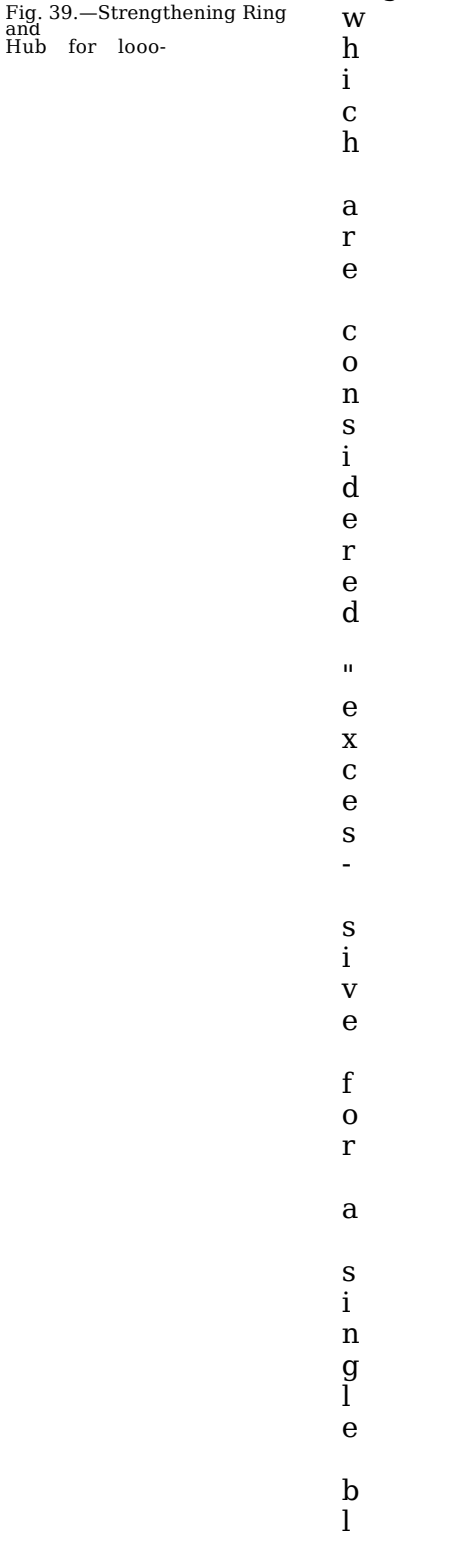

Fig. 39.—Strengthening Ring and Hub for looo-

ade ring, a number of blade sections are connected in parallel, and for turbines of larger outputs of 5000 Kw. and upwards the rotors are -provided with an axial-flow blade ring, the steam passing through guide blade rings before entering this stage. The radial-flow blading is designed on the reaction principip

le, but where a final axial-flow stage is adopted this is built on the impulse principle.

Fig. 40 illustrates a disc of a lOoo-Kw. turbine. The disc is built up in sections connected by means of dumb-bell section rings (i) so as to eliminate distortion, and one face of the disc is grooved to receive the caulking rings by means of which the blade rings are attached to the disc. The other side of the disc is arranged to receive the labyrinth disc referred to later, and has